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METHOD THEREOF

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## ABSTRACT:

PROBLEM TO BE SOLVED: To provide an image processor and the method for outputting an image with texture.

SOLUTION: Image data in a color with the width of a designated color level among inputted image data are discriminated and extracted by a discriminating circuit 206. The color of the extracted image data is converted by a color-converting circuit 207. The image data converted by the color-converting circuit 207 of a color/pattern converting circuit 100 are converted by an Add On circuit 208 of the color/pattern-converting circuit 100, by using a pattern ROM01 or a pattern stored in the pattern ROM01. The converted image data are composited with the image data which are not discriminated or extracted by the discriminating circuit 206 by a image-synthesizing circuit 209, and a image is outputted by using the obtained image data.

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**CLAIMS**

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[Claim(s)]

[Claim 1] An extract means to be the image processing system which performs an image processing, and to extract the image data which fulfills the conditions specified among said inputted image data based on the inputted image data, The image processing system characterized by having a 1st conversion means to change the color of the image data extracted with said extract means, and a 2nd conversion means to change the image data changed with said 1st conversion means using a predetermined pattern, and giving predetermined texture to an input image.

[Claim 2] It is the image processing system according to claim 1 which is further equipped with a storage means to memorize two or more patterns, and is characterized by changing said 2nd conversion means by superimposing on the image data into which the pattern chosen from the pattern memorized by said storage means was changed with said 1st conversion means.

[Claim 3] Said pattern is an image processing system according to claim 2 characterized by being superimposed in order to give texture to the image data changed with said 1st conversion means.

[Claim 4] Said pattern is an image processing system according to claim 2 which is matrix data which have the FFT property of giving texture to image data, and is characterized by overlapping the image data changed with said 1st conversion means.

[Claim 5] Said pattern is an image processing system according to claim 2 characterized by consisting of a matrix from which total of each element of a matrix is set to 1.

[Claim 6] Said 1st conversion means is an image processing system according to claim 1 characterized by changing into the predetermined color expressing texture the color of the image data extracted with said extract means.

[Claim 7] It is the image processing system according to claim 1 which is further equipped with an assignment means to specify the color changed with said 1st conversion means, and is characterized by changing said 1st conversion means into the color expressing the texture of the color specified with said assignment means in the color of the image data extracted with said extract means.

[Claim 8] The image processing system according to claim 1 characterized by the image data which fulfills said specified conditions being image data of the specified color which has the width of face of arbitration in color level among said inputted image data.

[Claim 9] The image data which fulfills said specified conditions is image data of the specified color which has the width of face of arbitration in the color level in the field specified among said inputted image data. Image processing system according to claim 1 characterized by things.

[Claim 10] The extract process which is the image-processing approach of performing an image processing, and extracts the image data which fulfills the conditions specified among said inputted image data based on the inputted image data, The image-processing approach characterized by having the 1st conversion process which changes the color of the image data extracted at said extract process, and the 2nd conversion process which changes the image data changed at said 1st conversion process using a predetermined pattern, and giving predetermined texture to an input image.

[Claim 11] It is the image-processing approach according to claim 10 which is further equipped with the

storage process which memorizes two or more patterns to a storage, and is characterized by changing said 2nd conversion process by superimposing on the image data into which the pattern chosen from the pattern memorized by the storage at said storage process was changed at said 1st conversion process.

[Claim 12] Said pattern is the image-processing approach according to claim 11 characterized by being superimposed in order to give texture to the image data changed at said 1st conversion process.

[Claim 13] Said pattern is the image-processing approach according to claim 11 which is matrix data which have the FFT property of giving texture to image data, and is characterized by overlapping the image data changed at said 1st conversion process.

[Claim 14] Said pattern is the image-processing approach according to claim 11 characterized by consisting of a matrix from which total of each element of a matrix is set to 1.

[Claim 15] Said 1st conversion process is the image-processing approach according to claim 10 characterized by changing into the predetermined color expressing texture the color of the image data extracted at said extract process.

[Claim 16] It is the image-processing approach according to claim 10 which is further equipped with the assignment process which specifies the color changed according to said 1st conversion process, and is characterized by changing said 1st conversion process into the color expressing the texture of the color specified at said assignment process in the color of the image data extracted at said extract process.

[Claim 17] The image-processing approach according to claim 10 characterized by said specified conditions being the image data of the specified color which has the width of face of arbitration in color level among said inputted image data.

[Claim 18] The image-processing approach according to claim 10 characterized by said specified conditions being the image data of the specified color which has the width of face of arbitration in the color level in the field specified among said inputted image data.

[Claim 19] The program code of the extract process which is the computer-readable memory in which the program code of an image processing was stored, and extracts the image data which fulfills the conditions specified among said inputted image data, Computer-readable memory characterized by having the program code of the 1st conversion process which changes the color of the image data extracted at said extract process, and the program code of the 2nd conversion process which changes the image data changed at said 1st conversion process using a predetermined pattern.

[Claim 20] The image-processing approach characterized by outputting as image data showing the input image which inputs the image data showing this input image in the image-processing approach for giving gloss to an input image, superimposes predetermined pattern data to this image data, and has gloss for the image data on which it was superimposed.

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[Translation done.]

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the image processing system which performs transform processing to the inputted image data, and its approach.

[0002]

[Description of the Prior Art] As a conventional example of the image equipment which forms a color picture on a record medium at drawing 5 based on the color-separation information on this invention, the configuration schematic diagrams of the whole are indicated to be the image processing and formation configuration schematic diagram of the copying machine of a digital method to drawing 6. First, Manuscript (manuscript image) D is irradiated with a manuscript lighting lamp (un-illustrating), and the reflected light is read by CCD1. And the analog picture signal acquired based on reflected light reinforcement by CCD1 is amplified to predetermined level with an amplifier (AMP) 2, and is changed into a 8 bits (zero to 255 gradation) digital picture signal by A/D converter 3.

[0003] Next, it is inputted into D/A converter 6 after gamma amendment of is done by making the gamma transducer 5 (transducer which consists of 256 bytes of memory and performs digital conversion by the look-up table method) pass this digital picture signal. In a comparator 7, Pulse Density Modulation of the signal again changed into the analog picture signal with D/A converter 6 is carried out by being compared with the signal of the predetermined period generated from the chopping sea generating circuit 9. The binary-ized picture signal which pulse width modulation was carried out and was acquired is inputted into a laser driver 10 as it is, and is used as an on-off-control signal which turns luminescence of a laser diode 11 on and off according to the value.

[0004] The laser beam irradiated from this laser diode 11 is scanned by the main scanning direction by the well-known polygon mirror 12. And it irradiates through the f/theta lens 13 and the reflective mirror 15 on the photoconductor drum 16 as \*\*\*\*\* which is rotating in the direction of direction of arrow head A, and an electrostatic latent image is formed. on the other hand -- a photoconductor drum 16 -- the electrification machine 19 carries out [ in homogeneity ] minus electrification of the electric discharge after a carrier beam with a photographic filter 17 at homogeneity. Then, in response to the laser beam mentioned above, an electrostatic latent image is formed in a front face according to a picture signal. And in a development counter 30, the reversal development method by the two component developer of a carrier beam part's common knowledge of electric discharge by the laser beam on a photoconductor drum 16 adheres to a toner, and it is visualized by the toner image which it developed.

[0005] \*\*\*\* (toner image which has a minus charge) formed on the photoconductor drum 16 is imprinted with the imprint electrification vessel 21 on the imprint material P (generally paper and the transparence sheet for OHP), as shown in drawing 5. It is sent to a fixing assembly 32 by the conveyance section 31, heat-and-pressure fixation is carried out, and \*\*\*\* imprinted on the imprint material P is discharged by the paper output tray 33. Moreover, the residual toner with which the photoconductor drum 16 remained in the front face fails to be scratched with a cleaner 23.

[0006]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional image processing system, it was impossible to have expressed faithfully texture with the metallic luster (for example, gold, silver, copper) to the manuscript with which a color with metallic luster is contained. This invention is made in view of the above-mentioned trouble, and it aims at offering the image processing system which can output an image with texture, and its approach.

[0007]

[Means for Solving the Problem] The image processing system by this invention for attaining the above-mentioned object is equipped with the following configurations. Namely, an extract means to be the image processing system which performs an image processing, and to extract the image data which fulfills the conditions specified among said inputted image data based on the inputted image data, It has with a 1st conversion means to change the color of the image data extracted with said extract means, and a 2nd conversion means to change the image data changed with said 1st conversion means using a predetermined pattern, and is characterized by giving predetermined texture to an input image.

[0008] Moreover, it has further preferably a storage means to memorize two or more patterns, and said 2nd conversion means is changed by superimposing on the image data into which the pattern chosen from the pattern memorized by said storage means was changed with said 1st conversion means. Moreover, preferably, said pattern is superimposed in order to give texture to the image data changed with said 1st conversion means.

[0009] Moreover, preferably, said pattern is matrix data which have the FFT property of giving texture to image data, and is superimposed by the image data changed with said 1st conversion means. Moreover, said pattern consists of a matrix from which total of each element of a matrix is set to 1 preferably.

[0010] Moreover, said 1st conversion means is preferably changed into the predetermined color which expresses texture for the color of the image data extracted with said extract means. Moreover, it has further an assignment means to specify preferably the color changed with said 1st conversion means, and said 1st conversion means is changed into the color expressing the texture of the color specified with said assignment means in the color of the image data extracted with said extract means. It is because it is convertible for the color expressing the texture of the color of a request of the color of the image data extracted with said extract means by specifying the color changed with said 1st conversion means.

[0011] Moreover, said specified conditions are the image data of the specified color which has the width of face of arbitration in color level among said inputted image data preferably. Moreover, said specified conditions are the image data of the specified color which has the width of face of arbitration in the color level in the field specified among said inputted image data preferably.

[0012] The image-processing approach by this invention for attaining the above-mentioned object is equipped with the following configurations. Namely, the extract process which is the image-processing approach of performing an image processing, and extracts the image data which fulfills the conditions specified among said inputted image data based on the inputted image data, It has the 1st conversion process which changes the color of the image data extracted at said extract process, and the 2nd conversion process which changes the image data changed at said 1st conversion process using a pattern, and is characterized by giving predetermined texture to an input image.

[0013] Moreover, it has further preferably the storage process which memorizes two or more patterns to a storage, and said 2nd conversion process is changed by superimposing on the image data into which the pattern chosen from the pattern memorized by the storage at said storage process was changed at said 1st conversion process.

[0014] Moreover, preferably, said pattern is superimposed in order to give texture to the image data changed at said 1st conversion process. Moreover, preferably, said pattern is matrix data which have the FFT property of giving texture to image data, and is superimposed by the image data changed at said 1st conversion process.

[0015] Moreover, said pattern consists of a matrix from which total of each element of a matrix is set to 1 preferably. Moreover, said 1st conversion process is preferably changed into the predetermined color

which expresses texture for the color of the image data extracted at said extract process. Moreover, it has further the assignment process which specifies preferably the color changed according to said 1st conversion process, and said 1st conversion process is changed into the color expressing the texture of the color specified at said assignment process in the color of the image data extracted at said extract process.

[0016] Moreover, the image data which fulfills said specified conditions is image data of the specified color which has the width of face of arbitration in color level among said inputted image data preferably. Moreover, the image data which fulfills said specified conditions is image data of the specified color which has the width of face of arbitration in the color level in the field specified among said inputted image data preferably.

[0017] The computer-readable memory by this invention for attaining the above-mentioned object is equipped with the following configurations. That is, it is the computer-readable memory in which the program code of an image processing was stored, and has the program code of the extract process which extracts the image data which fulfills the conditions specified among said inputted image data, the program code of the 1st conversion process which changes the color of the image data extracted at said extract process, and the program code of the 2nd conversion process which changes the image data changed at said 1st conversion process using a predetermined pattern. The image-processing approach by this invention for attaining the above-mentioned object is equipped with the following configurations. That is, in the image-processing approach for giving gloss to an input image, the image data showing this input image is inputted, and it is characterized by outputting to this image data as image data showing the input image which has gloss for the image data on which predetermined pattern data were superimposed and superimposed.

[0018]

[Embodiment of the Invention] Hereafter, the suitable operation gestalt of this invention is explained to a detail with reference to a drawing.

<Operation gestalt 1> this invention can realize formation of the image which had the texture of the impossible metallic luster conventionally by newly having the color and pattern conversion circuit which generates a picture signal with the texture of metallic luster to the configuration of the drawing 5 and the conventional copying machine of 6 which were mentioned above. Moreover, actuation of the control panel which it has in order that directions of activation of the color and pattern transform processing by the color and the pattern conversion circuit may perform various actuation of the conventional copying machine realizes. In addition, in addition to the function realized with the control panel of the conventional copying machine, on the control panel of the copying machine explained by this invention, it has the color and the pattern transform-processing selection key which can direct activation of a color and pattern transform processing.

[0019] First, the actuation on the control panel for performing processing explained with the operation gestalt 1 of this invention is explained using the flow chart of drawing 1. Drawing 1 is a flow chart which shows the actuation on the control panel for performing the color and pattern transform processing explained with the operation gestalt 1. The color and pattern transform-processing selection key on a control panel are chosen, and a color and pattern transform processing are started (step S101). A color (color to give metallic luster in this invention) to change among the colors in a manuscript image is chosen using the editor (image edit function) which it has on the control panel (step S102).

[0020] There is a method of specifying a color from the inside of the color circle prepared by the approach of specifying to the color in a actual manuscript image as an approach of choosing using a direct-control panel and the editor which it has on the control panel, or a color palette. Furthermore, in order to distinguish the color made applicable to conversion, it becomes the color which specified the range of the color level of the range of arbitration on the basis of the specified color, and the color contained within the limits of the specified color level specified. The range of the color level of \*\*10 level extent is set up on the basis of the color which specified the range of this color level as initial value also in which approach. In addition, a user can specify the color level of the range of arbitration in the range of color level inputting a numeric value with the ten key which it has on the control panel.

Moreover, when not specifying, initial value is specified as range of color level.

[0021] And when judging and (step S103) specifying whether the range of color level is specified, the range of the color level of the range of arbitration is specified by the user (step S104a). On the other hand, when there is no assignment by the user, initial value is specified as range of color level. (Step S104b). Thus, it becomes the field to which a color and pattern transform processing are performed to a field with the color contained in the range of color level specified among the colors used into the manuscript image.

[0022] Next, the texture pattern which is a pattern of texture given to the specified color is specified (step S105). This will be specified from the name of the texture pattern of what class registered beforehand, or its image. In this invention, a texture pattern is specified from the superposition pattern which specifies a texture pattern from the metal pattern which consist of a name of that metal how many kinds, such as aluminum, iron, silver, and copper, or consists of an image of that texture pattern how many kinds. And a user chooses a desired texture pattern (step S106a, step S106b). In addition, selection of a texture pattern is controlled so that the name or image of a texture pattern is displayed for example, on a control panel, and a texture pattern can be chosen by specifying either of the displayed texture pattern. In addition, although the metal pattern which consists of a metaled name is mentioned as the example as a pattern group with the name of the texture pattern registered in this invention, it does not restrict to this. For example, the texture pattern which consists of a name of the texture of other bodies, such as paper, a tree, and plastics, can also be registered.

[0023] If selection of a texture pattern is completed, a list indication of the selection situation of a color or a texture pattern made applicable to conversion is given, and it is urged to the check of a selection situation at a user (step S107), and correction will be made when there is correction (step S108). And if the Enter key which it has on the control panel is directed after correction is completed, the copy processing accompanied by a color and pattern transform processing will start (step S109).

[0024] The above serves as actuation on the control panel for performing the color and pattern transform processing of the operation gestalt 1. Next, an image processing including the color and pattern transform processing performed with the operation gestalt 1 is explained using drawing 2. In addition, an image processing here is an image processing (when drawing 5 explains; it corresponds to the image processing performed between laser drivers 10 from CCD1) performed in order to perform copy actuation. And the image processing performed with the operation gestalt 1 has the composition that a color and pattern transform processing were added to the process of the image processing currently performed with the conventional copying machine.

[0025] Drawing 2 is an image-processing process flowchart which shows the image processing performed with the operation gestalt 1. First, an input of a start signal performs the press can which acquires a picture signal from a manuscript (manuscript image). For this reason, the picture signal acquired by the press can is memorized by the data RAM for press cans through the processing performed in each unit of 1, 3,203-6 of drawing 2. The image information (a color, the color and location data in which a location is shown) on a actual manuscript image is memorized by the data RAM 200 for press cans, and it is used by this in case the color and pattern conversion circuit mentioned later are performed.

[0026] After the image information of a manuscript image is memorized by the data RAM 200 for press cans, loading of the usual manuscript image and image formation are performed. Hereafter, the outline of the image processing performed in each unit of 1, 3,203-6 is explained. However, processing here is the same as the image processing performed with the conventional copying machine. A/D conversion of the picture signal RGB read from CCD1 is carried out with A/D converter 3. And the shading compensation which amends the variation in the output from CCD1 by 203 is made, and then the picture signal RGB by which A/D conversion was carried out performs input masking processing, and performs color space compression for changing a picture signal RGB into a CMY color coordinate system from RGB color coordinates further. By 204, the LOG conversion which changes a picture signal RGB into a picture signal CMY is made. A picture signal CMYBk is acquired by black (Bk) being extracted from a picture signal CMY by 205. Furthermore, masking processing (for example, 4x8 masking) is made.



Thus, a picture signal RGB is changed into a picture signal CMYBk. In addition, in the conventional copying machine, it has directly the composition of sending a picture signal CMYBk 205-210.

[0027] With reference to the color and location data of the manuscript image memorized by the data RAM 200 for press cans, the picture signal M'CYK in the color level which performs a color and pattern transform processing in a manuscript image is chosen by the judgment circuit 206, and the gate of the picture signal CMYBk changed from the picture signal RGB is carried out to a color and the pattern conversion circuit 100. Other picture signal M\*C\*Y\*K\* is directly inputted into the image composition circuit 209.

[0028] Color conversion of the picture signal M'CYK by which the gate was carried out to the color and the pattern conversion circuit 100 is uniformly carried out to picture signal M'C'Y'K' which shows the texture color registered beforehand by the color conversion circuit 207. In addition, even if the range of the color level before the conversion specified is including the multiple value, color conversion will be uniformly carried out to picture signal M'C'Y'K' which shows the texture color registered (even if this image is gradation).

[0029] picture signal M'C'Y'K' by which color conversion was carried out -- the AddOn (pattern superposition) circuit 208 -- (-- a white-noise image signal -- receiving --) -- reading appearance of the specified texture pattern is carried out from ROM01 (101) which memorizes the texture pattern corresponding to the name of the metal which a metal pattern shows, or ROM02 (102) which memorizes the texture pattern corresponding to the image which a superposition pattern shows. And it is superimposed on the texture pattern and picture signal M'C'Y'K' by which reading appearance was carried out, picture signal M"C"Y"K" is obtained, and it is inputted into the image composition circuit 209.

[0030] Picture signal M"C"Y"K" and picture signal M\*C\*Y\*K\* are again compounded as one picture signal in the image composition circuit 209. And filter processing is made by 210, and it is inputted into a laser driver 10 after gamma amendment of is done by the gamma transducer 5. The processing after this is processed like the above-mentioned conventional copying machine, an electrostatic latent image is formed on a photoconductor drum of the output of the laser controlled by the laser driver 19, and an image is formed on a record medium through development and imprint / fixation process.

[0031] Here, explanation is added about a color and the pattern conversion circuit 100. About the processing performed by the color conversion circuit 207, there are not processing performed by color transform processing realized by the existing editor ability (image edit function) and a place which changes in any way. However, the selection approach of the color specified as a parameter of conversion makes possible the approach of specifying the color from the color circle on editor ability, or a color pallet other than the approach of specifying the specific color in the manuscript image before conversion. In the case of the approach of specifying the latter color, the field in the manuscript image by which is dependent on assignment of the range of color level, and color conversion is carried out will change.

[0032] About the AddOn circuit 208, the pattern specified from the pattern ROM 01 (101) or the pattern ROM 02 (102) is read, and processing superimposed on chrominance-signal M'C'Y'K' is performed. Moreover, the pattern used in the AddOn circuit 208 It is the combination which shifted the phase of the digit string on a par with a line writing direction as showed (a) of drawing 3 . Total of several character each train (digit string by which hatching is carried out by a diagram) on a par with a line writing direction And 1 and a matrix from which the direction of a train is further set to 1 similarly, It is a matrix with the FFT property expressing texture as shown in (b) of drawing 3 , and texture can be given to the image formed by using these patterns. Moreover, these patterns are examples and it cannot be overemphasized that each element and FFT property of a matrix change according to the class of texture and metal.

[0033] Moreover, it cannot be overemphasized that this image processing itself is an image processing applicable to image formation equipments other than a copying machine, for example, an ink regurgitation mold printer etc. As explained above, according to the operation gestalt 1, a picture signal with the metallic texture and the color of the arbitration which is not in the former is generable to the

picture signal read in the manuscript image by performing above-mentioned color and pattern transform processing. Moreover, it becomes possible to form an image with metallic texture and a color with the picture signal.

[0034] The picture signal which has the metallic texture and the color of the arbitration which is not in the former by the color and pattern transform processing explained with the <operation gestalt 2> operation gestalt 1 can be generated now. However, in the color and pattern transform processing explained with the operation gestalt 1, the color level of a picture signal with the metallic texture and the color generated is uniform, and was not able to generate a picture signal with the metallic texture and the color which has width of face in color level. Moreover, since a color and pattern transform processing were performed to the picture signal with the color which is within the limits of the color level specified in the manuscript image, a color and pattern transform processing were not able to be performed to the picture signal in the field of the request in a manuscript image.

[0035] So, with the operation gestalt 2, the picture signal which has the metallic texture and the color which has width of face in color level by giving the function to give width of face in the color level of a picture signal with the metallic texture and the color generated is generated in a color and pattern transform processing. Moreover, a color and pattern transform processing are performed to the picture signal in the field of the request in a manuscript image by giving the function to specify the field of the request in a manuscript image.

[0036] And on the control panel explained with the operation gestalt 1, it realizes and activation of these functions can carry out things. Moreover, the configuration of the image processing which performs these functions is realizable with the configuration explained by drawing 2 of the operation gestalt 1. The actuation on the control panel for performing hereafter processing explained with the operation gestalt 2 of this invention is explained using the flow chart of drawing 4.

[0037] Drawing 4 is a flow chart which shows the actuation on the control panel for performing the color and pattern transform processing explained with the operation gestalt 2. The color and pattern transform-processing selection key on a control panel are chosen, and a color and pattern transform processing are started (step S401). A field to change is specified using the editor (image edit function) which it has on the control panel. Here, the rectangle field of the request in a manuscript image is specified. It carries out by specifying two points which show the vertical angle of a rectangle field as the appointed approach. Next, a color (color to give metallic luster) to change among the colors in the specified rectangle field is chosen (step S403). In addition, assignment of the field of the request in a manuscript image can specify the field of the form of arbitration, such as a field surrounded not only by the rectangle but by a circle and a free form curve.

[0038] As an approach of choosing, since it is the same as that of the operation gestalt 1, explanation is omitted. And when judging and (step S404) specifying whether the range of color level is specified, the range of the color level of the range of arbitration is specified by the user (step S405a). On the other hand, when there is no assignment by the user, initial value is specified as range of color level. (Step S405b). Thus, a field with the color contained in the range of color level specified among the colors used all over the rectangle field turns into a field to which a color and pattern transform processing are performed.

[0039] Next, the texture pattern given to the specified color is specified (step S406). A user chooses a desired texture pattern from the texture pattern of what class with which this is registered beforehand (step S407a, step S407b). Next, the color to change is specified to the specified color (step S408). And when judging and (step S409) specifying whether the range of color level is specified as the specified color, the range of the color level of arbitration is specified by the user (step S410a). On the other hand, when there is no assignment by the user, the range of color level specified by step S405a or step S405b is followed. (Step S410b). Moreover, correction is made, when a list indication of the selection situation of the texture pattern which can also be specified that it does not give the range of color level to the specified color, the color which will be made applicable to conversion if selection of a color is completed and the texture pattern after conversion, or a color is given, it is urged to the check of a selection situation at a user (step S411) and correction is (step S412). And if the Enter key which it has

on the control panel is directed after correction is completed, the copy processing accompanied by a color and pattern transform processing will start (step S413).

[0040] The above serves as actuation on the control panel for performing the color and pattern transform processing of the operation gestalt 2. Next, an image processing including the color and pattern transform processing performed with the operation gestalt 2 is explained using drawing 2. In addition, the press can explained with the operation gestalt 1 is performed similarly. Since it is the same as that of the operation gestalt 1 for details, it omits. After the image information of a manuscript image is memorized by the data RAM 200 for press cans, loading of the usual manuscript image and image formation are performed. Hereafter, the image processing performed in each unit of 1, 3,203-6 is performed. Since it is the same as that of the operation gestalt 1 also about this explanation, it omits.

[0041] And with reference to the color and location data of the manuscript image memorized by the data RAM 200 for press cans, the picture signal MCYK in the color level which performs the color and pattern transform processing in the specified rectangle field in a manuscript image is chosen by the judgment circuit 206, and the gate of the picture signal CMYBk changed from the picture signal RGB is carried out to a color and the pattern conversion circuit 100. Other picture signal M\*C\*Y\*K\* is directly inputted into the image composition circuit 209.

[0042] Color conversion of the picture signal MCYK by which the gate was carried out to the color and the pattern conversion circuit 100 is carried out at picture signal M'C'Y'K' which shows the texture color which has the specified range of color level by the color conversion circuit 207. picture signal M'C'Y'K' by which color conversion was carried out -- the AddOn (pattern superposition) circuit 208 -- (-- a white-noise image signal -- receiving --) -- reading appearance of the pattern specified from ROM01 (101) which memorizes a metal pattern, or ROM02 (102) which memorizes a superposition pattern is carried out. And it is superimposed on the pattern and picture signal M'C'Y'K' by which reading appearance was carried out, picture signal M"C"Y"K" is obtained, and it is inputted into the image composition circuit 209.

[0043] Picture signal M"C"Y"K" and picture signal M\*C\*Y\*K\* are again compounded as one picture signal in the image composition circuit 209. And filter processing is made by 210, and it is inputted into a laser driver 10 after gamma amendment of is done by the gamma transducer 5. The processing after this is processed like the above-mentioned conventional copying machine, an electrostatic latent image is formed on a photoconductor drum of the output of the laser controlled by the laser driver 19, and an image is formed on a record medium through development and imprint / fixation process.

[0044] As explained above, according to the operation gestalt 2, to the picture signal read in the manuscript image, it can give the field of a request of above-mentioned color and pattern transform processing, and a picture signal with the metallic texture and the color of arbitration which has width of face in the color level which is not in the former can be generated. Moreover, it becomes possible to form in a desired field the image which has metallic texture and a color with width of face in color level with the picture signal.

[0045] In the image formation equipment which can be selectively extracted about the image information signal of the specific color field and appointed field according to the operation gestalten 1 and 2 as explained above By adding a pattern superposition circuit, it became possible to obtain the output image which incorporated on the image the metallic texture which did not exist conventionally by rewriting the color information on the image information extracted by arbitration, and superimposing specific image pattern information. Moreover, the image with the metallic texture of the color of arbitration was obtained by changing the color into the color of arbitration.

[0046] In addition, even if it applies this invention to the system which consists of two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), it may be applied to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device. Moreover, it cannot be overemphasized by the object of this invention supplying the storage which recorded the program code of the software which realizes the function of the operation gestalt mentioned above to a system or equipment, and carrying out read-out activation of the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage that it is attained.

[0047] In this case, the function of the gestalt of operation which the program code itself read from the storage mentioned above will be realized, and the storage which memorized that program code will constitute this invention. As a storage for supplying a program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.

[0048] Moreover, it cannot be overemphasized that it is contained also when the function of the gestalt of operation which performed a part or all of processing that OS (operating system) which is working on a computer is actual, based on directions of the program code, and the function of the operation gestalt mentioned above by performing the program code which the computer read is not only realized, but was mentioned above by the processing is realized.

[0049] Furthermore, after the program code read from a storage is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or a computer is equipped, it cannot be overemphasized that it is contained also when the function of the operation gestalt which performed a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped based on directions of the program code is actual, and mentioned above by the processing is realized.

[0050] Although the program code corresponding to the flow chart explained previously will be stored in the storage when applying this invention to the above-mentioned storage, when it explains briefly, each module shown in the example of a memory map of drawing 7 will be stored in a storage. Namely, what is necessary is just to store the program code of each module of an "extract module", the "1st conversion module", and the "2nd conversion module" in a storage at least.

[0051] In addition, an "extract module" extracts the image data which fulfills the conditions specified among said inputted image data. The "1st conversion module" changes the color of the extracted image data. The "2nd conversion module" changes the changed image data using a predetermined pattern.

[0052]

[Effect of the Invention] As explained above, according to this invention, the image processing system which can output an image with texture, and its approach can be offered.

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[Translation done.]

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TECHNICAL FIELD

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[Field of the Invention] This invention relates to the image processing system which performs transform processing to the inputted image data, and its approach.

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[Translation done.]

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**PRIOR ART**

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[Description of the Prior Art] As a conventional example of the image equipment which forms a color picture on a record medium at drawing 5 based on the color-separation information on this invention, the configuration schematic diagrams of the whole are indicated to be the image processing and formation configuration schematic diagram of the copying machine of a digital method to drawing 6. First, Manuscript (manuscript image) D is irradiated with a manuscript lighting lamp (un-illustrating), and the reflected light is read by CCD1. And the analog picture signal acquired based on reflected light reinforcement by CCD1 is amplified to predetermined level with an amplifier (AMP) 2, and is changed into a 8 bits (zero to 255 gradation) digital picture signal by A/D converter 3.

[0003] Next, it is inputted into D/A converter 6 after gamma amendment of is done by making the gamma transducer 5 (transducer which consists of 256 bytes of memory and performs digital conversion by the look-up table method) pass this digital picture signal. In a comparator 7, Pulse Density Modulation of the signal again changed into the analog picture signal with D/A converter 6 is carried out by being compared with the signal of the predetermined period generated from the chopping sea generating circuit 9. The binary-ized picture signal which pulse width modulation was carried out and was acquired is inputted into a laser driver 10 as it is, and is used as an on-off-control signal which turns luminescence of a laser diode 11 on and off according to the value.

[0004] The laser beam irradiated from this laser diode 11 is scanned by the main scanning direction by the well-known polygon mirror 12. And it irradiates through the f/theta lens 13 and the reflective mirror 15 on the photoconductor drum 16 as \*\*\*\*\* which is rotating in the direction of direction of arrow head A, and an electrostatic latent image is formed. on the other hand -- a photoconductor drum 16 -- the electrification machine 19 carries out [ in homogeneity ] minus electrification of the electric discharge after a carrier beam with a photographic filter 17 at homogeneity. Then, in response to the laser beam mentioned above, an electrostatic latent image is formed in a front face according to a picture signal. And in a development counter 30, the reversal development method by the two component developer of a carrier beam part's common knowledge of electric discharge by the laser beam on a photoconductor drum 16 adheres to a toner, and it is visualized by the toner image which it developed.

[0005] \*\*\*\* (toner image which has a minus charge) formed on the photoconductor drum 16 is imprinted with the imprint electrification vessel 21 on the imprint material P (generally paper and the transparence sheet for OHP), as shown in drawing 5. It is sent to a fixing assembly 32 by the conveyance section 31, heat-and-pressure fixation is carried out, and \*\*\*\* imprinted on the imprint material P is discharged by the paper output tray 33. Moreover, the residual toner with which the photoconductor drum 16 remained in the front face fails to be scratched with a cleaner 23.

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EFFECT OF THE INVENTION

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[Effect of the Invention] As explained above, according to this invention, the image processing system which can output an image with texture, and its approach can be offered.

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[Translation done.]

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional image processing system, it was impossible to have expressed faithfully texture with the metallic luster (for example, gold, silver, copper) to the manuscript with which a color with metallic luster is contained. This invention is made in view of the above-mentioned trouble, and it aims at offering the image processing system which can output an image with texture, and its approach.

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[Translation done.]



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MEANS

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[Means for Solving the Problem] The image processing system by this invention for attaining the above-mentioned object is equipped with the following configurations. Namely, an extract means to be the image processing system which performs an image processing, and to extract the image data which fulfills the conditions specified among said inputted image data based on the inputted image data, It has with a 1st conversion means to change the color of the image data extracted with said extract means, and a 2nd conversion means to change the image data changed with said 1st conversion means using a predetermined pattern, and is characterized by giving predetermined texture to an input image.

[0008] Moreover, it has further preferably a storage means to memorize two or more patterns, and said 2nd conversion means is changed by superimposing on the image data into which the pattern chosen from the pattern memorized by said storage means was changed with said 1st conversion means. Moreover, preferably, said pattern is superimposed in order to give texture to the image data changed with said 1st conversion means.

[0009] Moreover, preferably, said pattern is matrix data which have the FFT property of giving texture to image data, and is superimposed by the image data changed with said 1st conversion means. Moreover, said pattern consists of a matrix from which total of each element of a matrix is set to 1 preferably.

[0010] Moreover, said 1st conversion means is preferably changed into the predetermined color which expresses texture for the color of the image data extracted with said extract means. Moreover, it has further an assignment means to specify preferably the color changed with said 1st conversion means, and said 1st conversion means is changed into the color expressing the texture of the color specified with said assignment means in the color of the image data extracted with said extract means. It is because it is convertible for the color expressing the texture of the color of a request of the color of the image data extracted with said extract means by specifying the color changed with said 1st conversion means.

[0011] Moreover, said specified conditions are the image data of the specified color which has the width of face of arbitration in color level among said inputted image data preferably. Moreover, said specified conditions are the image data of the specified color which has the width of face of arbitration in the color level in the field specified among said inputted image data preferably.

[0012] The image-processing approach by this invention for attaining the above-mentioned object is equipped with the following configurations. Namely, the extract process which is the image-processing approach of performing an image processing, and extracts the image data which fulfills the conditions specified among said inputted image data based on the inputted image data, It has the 1st conversion process which changes the color of the image data extracted at said extract process, and the 2nd conversion process which changes the image data changed at said 1st conversion process using a pattern, and is characterized by giving predetermined texture to an input image.

[0013] Moreover, it has further preferably the storage process which memorizes two or more patterns to a storage, and said 2nd conversion process is changed by superimposing on the image data into which the pattern chosen from the pattern memorized by the storage at said storage process was changed at

said 1st conversion process.

[0014] Moreover, preferably, said pattern is superimposed in order to give texture to the image data changed at said 1st conversion process. Moreover, preferably, said pattern is matrix data which have the FFT property of giving texture to image data, and is superimposed by the image data changed at said 1st conversion process.

[0015] Moreover, said pattern consists of a matrix from which total of each element of a matrix is set to 1 preferably. Moreover, said 1st conversion process is preferably changed into the predetermined color which expresses texture for the color of the image data extracted at said extract process. Moreover, it has further the assignment process which specifies preferably the color changed according to said 1st conversion process, and said 1st conversion process is changed into the color expressing the texture of the color specified at said assignment process in the color of the image data extracted at said extract process.

[0016] Moreover, the image data which fulfills said specified conditions is image data of the specified color which has the width of face of arbitration in color level among said inputted image data preferably. Moreover, the image data which fulfills said specified conditions is image data of the specified color which has the width of face of arbitration in the color level in the field specified among said inputted image data preferably.

[0017] The computer-readable memory by this invention for attaining the above-mentioned object is equipped with the following configurations. That is, it is the computer-readable memory in which the program code of an image processing was stored, and has the program code of the extract process which extracts the image data which fulfills the conditions specified among said inputted image data, the program code of the 1st conversion process which changes the color of the image data extracted at said extract process, and the program code of the 2nd conversion process which changes the image data changed at said 1st conversion process using a predetermined pattern. The image-processing approach by this invention for attaining the above-mentioned object is equipped with the following configurations. That is, in the image-processing approach for giving gloss to an input image, the image data showing this input image is inputted, and it is characterized by outputting to this image data as image data showing the input image which has gloss for the image data on which predetermined pattern data were superimposed and superimposed.

[0018]

[Embodiment of the Invention] Hereafter, the suitable operation gestalt of this invention is explained to a detail with reference to a drawing.

<Operation gestalt 1> this invention can realize formation of the image which had the texture of the impossible metallic luster conventionally by newly having the color and pattern conversion circuit which generates a picture signal with the texture of metallic luster to the configuration of the drawing 5 and the conventional copying machine of 6 which were mentioned above. Moreover, actuation of the control panel which it has in order that directions of activation of the color and pattern transform processing by the color and the pattern conversion circuit may perform various actuation of the conventional copying machine realizes. In addition, in addition to the function realized with the control panel of the conventional copying machine, on the control panel of the copying machine explained by this invention, it has the color and the pattern transform-processing selection key which can direct activation of a color and pattern transform processing.

[0019] First, the actuation on the control panel for performing processing explained with the operation gestalt 1 of this invention is explained using the flow chart of drawing 1. Drawing 1 is a flow chart which shows the actuation on the control panel for performing the color and pattern transform processing explained with the operation gestalt 1. The color and pattern transform-processing selection key on a control panel are chosen, and a color and pattern transform processing are started (step S101). A color (color to give metallic luster in this invention) to change among the colors in a manuscript image is chosen using the editor (image edit function) which it has on the control panel (step S102).

[0020] There is a method of specifying a color from the inside of the color circle prepared by the approach of specifying to the color in a actual manuscript image as an approach of choosing using a

direct-control panel and the editor which it has on the control panel, or a color palette. Furthermore, in order to distinguish the color made applicable to conversion, it becomes the color which specified the range of the color level of the range of arbitration on the basis of the specified color, and the color contained within the limits of the specified color level specified. The range of the color level of \*\*10 level extent is set up on the basis of the color which specified the range of this color level as initial value also in which approach. In addition, a user can specify the color level of the range of arbitration in the range of color level inputting a numeric value with the ten key which it has on the control panel. Moreover, when not specifying, initial value is specified as range of color level.

[0021] And when judging and (step S103) specifying whether the range of color level is specified, the range of the color level of the range of arbitration is specified by the user (step S104a). On the other hand, when there is no assignment by the user, initial value is specified as range of color level. (Step S104b). Thus, it becomes the field to which a color and pattern transform processing are performed to a field with the color contained in the range of color level specified among the colors used into the manuscript image.

[0022] Next, the texture pattern which is a pattern of texture given to the specified color is specified (step S105). This will be specified from the name of the texture pattern of what class registered beforehand, or its image. In this invention, a texture pattern is specified from the superposition pattern which specifies a texture pattern from the metal pattern which consist of a name of that metal how many kinds, such as aluminum, iron, silver, and copper, or consists of an image of that texture pattern how many kinds. And a user chooses a desired texture pattern (step S106a, step S106b). In addition, selection of a texture pattern is controlled so that the name or image of a texture pattern is displayed for example, on a control panel, and a texture pattern can be chosen by specifying either of the displayed texture pattern. In addition, although the metal pattern which consists of a metaled name is mentioned as the example as a pattern group with the name of the texture pattern registered in this invention, it does not restrict to this. For example, the texture pattern which consists of a name of the texture of other bodies, such as paper, a tree, and plastics, can also be registered.

[0023] If selection of a texture pattern is completed, a list indication of the selection situation of a color or a texture pattern made applicable to conversion is given, and it is urged to the check of a selection situation at a user (step S107), and correction will be made when there is correction (step S108). And if the Enter key which it has on the control panel is directed after correction is completed, the copy processing accompanied by a color and pattern transform processing will start (step S109).

[0024] The above serves as actuation on the control panel for performing the color and pattern transform processing of the operation gestalt 1. Next, an image processing including the color and pattern transform processing performed with the operation gestalt 1 is explained using drawing 2. In addition, an image processing here is an image processing (when drawing 5 explains, it corresponds to the image processing performed between laser drivers 10 from CCD1) performed in order to perform copy actuation. And the image processing performed with the operation gestalt 1 has the composition that a color and pattern transform processing were added to the process of the image processing currently performed with the conventional copying machine.

[0025] Drawing 2 is an image-processing process flowchart which shows the image processing performed with the operation gestalt 1. First, an input of a start signal performs the press can which acquires a picture signal from a manuscript (manuscript image). For this reason, the picture signal acquired by the press can is memorized by the data RAM for press cans through the processing performed in each unit of 1, 3,203-6 of drawing 2. The image information (a color, the color and location data in which a location is shown) on a actual manuscript image is memorized by the data RAM 200 for press cans, and it is used by this in case the color and pattern conversion circuit mentioned later are performed.

[0026] After the image information of a manuscript image is memorized by the data RAM 200 for press cans, loading of the usual manuscript image and image formation are performed. Hereafter, the outline of the image processing performed in each unit of 1, 3,203-6 is explained. However, processing here is the same as the image processing performed with the conventional copying machine. A/D conversion of

the picture signal RGB read from CCD1 is carried out with A/D converter 3. And the shading compensation which amends the variation in the output from CCD1 by 203 is made, and then the picture signal RGB by which A/D conversion was carried out performs input masking processing, and performs color space compression for changing a picture signal RGB into a CMY color coordinate system from RGB color coordinates further. By 204, the LOG conversion which changes a picture signal RGB into a picture signal CMY is made. A picture signal CMYBk is acquired by black (Bk) being extracted from a picture signal CMY by 205. Furthermore, masking processing (for example, 4x8 masking) is made. Thus, a picture signal RGB is changed into a picture signal CMYBk. In addition, in the conventional copying machine, it has directly the composition of sending a picture signal CMYBk 205-210.

[0027] With reference to the color and location data of the manuscript image memorized by the data RAM 200 for press cans, the picture signal M'CYK in the color level which performs a color and pattern transform processing in a manuscript image is chosen by the judgment circuit 206, and the gate of the picture signal CMYBk changed from the picture signal RGB is carried out to a color and the pattern conversion circuit 100. Other picture signal M\*CYK\* is directly inputted into the image composition circuit 209.

[0028] Color conversion of the picture signal M'CYK by which the gate was carried out to the color and the pattern conversion circuit 100 is uniformly carried out to picture signal M'C'Y'K' which shows the texture color registered beforehand by the color conversion circuit 207. In addition, even if the range of the color level before the conversion specified is including the multiple value, color conversion will be uniformly carried out to picture signal M'C'Y'K' which shows the texture color registered (even if this image is gradation).

[0029] picture signal M'C'Y'K' by which color conversion was carried out -- the AddOn (pattern superposition) circuit 208 -- (-- a white-noise image signal -- receiving --) -- reading appearance of the specified texture pattern is carried out from ROM01 (101) which memorizes the texture pattern corresponding to the name of the metal which a metal pattern shows, or ROM02 (102) which memorizes the texture pattern corresponding to the image which a superposition pattern shows. And it is superimposed on the texture pattern and picture signal M'C'Y'K' by which reading appearance was carried out, picture signal M"C"Y"K" is obtained, and it is inputted into the image composition circuit 209.

[0030] Picture signal M"C"Y"K" and picture signal M\*CYK\* are again compounded as one picture signal in the image composition circuit 209. And filter processing is made by 210, and it is inputted into a laser driver 10 after gamma amendment of is done by the gamma transducer 5. The processing after this is processed like the above-mentioned conventional copying machine, an electrostatic latent image is formed on a photoconductor drum of the output of the laser controlled by the laser driver 19, and an image is formed on a record medium through development and imprint / fixation process.

[0031] Here, explanation is added about a color and the pattern conversion circuit 100. About the processing performed by the color conversion circuit 207, there are not processing performed by color transform processing realized by the existing editor ability (image edit function) and a place which changes in any way. However, the selection approach of the color specified as a parameter of conversion makes possible the approach of specifying the color from the color circle on editor ability, or a color pallet other than the approach of specifying the specific color in the manuscript image before conversion. In the case of the approach of specifying the latter color, the field in the manuscript image by which is dependent on assignment of the range of color level, and color conversion is carried out will change.

[0032] About the AddOn circuit 208, the pattern specified from the pattern ROM 01 (101) or the pattern ROM 02 (102) is read, and processing superimposed on chrominance-signal M'C'Y'K' is performed. Moreover, the pattern used in the AddOn circuit 208 It is the combination which shifted the phase of the digit string on a par with a line writing direction as showed (a) of drawing 3 . Total of several character each train (digit string by which hatching is carried out by a diagram) on a par with a line writing direction And 1 and a matrix from which the direction of a train is further set to 1 similarly, It is a matrix with the FFT property expressing texture as shown in (b) of drawing 3 , and texture can be given to the

image formed by using these patterns. Moreover, these patterns are examples and it cannot be overemphasized that each element and FFT property of a matrix change according to the class of texture and metal.

[0033] Moreover, it cannot be overemphasized that this image processing itself is an image processing applicable to image formation equipments other than a copying machine, for example, an ink regurgitation mold printer etc. As explained above, according to the operation gestalt 1, a picture signal with the metallic texture and the color of the arbitration which is not in the former is generable to the picture signal read in the manuscript image by performing above-mentioned color and pattern transform processing. Moreover, it becomes possible to form an image with metallic texture and a color with the picture signal.

[0034] The picture signal which has the metallic texture and the color of the arbitration which is not in the former by the color and pattern transform processing explained with the <operation gestalt 2> operation gestalt 1 can be generated now. However, in the color and pattern transform processing explained with the operation gestalt 1, the color level of a picture signal with the metallic texture and the color generated is uniform, and was not able to generate a picture signal with the metallic texture and the color which has width of face in color level. Moreover, since a color and pattern transform processing were performed to the picture signal with the color which is within the limits of the color level specified in the manuscript image, a color and pattern transform processing were not able to be performed to the picture signal in the field of the request in a manuscript image.

[0035] So, with the operation gestalt 2, the picture signal which has the metallic texture and the color which has width of face in color level by giving the function to give width of face in the color level of a picture signal with the metallic texture and the color generated is generated in a color and pattern transform processing. Moreover, a color and pattern transform processing are performed to the picture signal in the field of the request in a manuscript image by giving the function to specify the field of the request in a manuscript image.

[0036] And on the control panel explained with the operation gestalt 1, it realizes and activation of these functions can carry out things. Moreover, the configuration of the image processing which performs these functions is realizable with the configuration explained by drawing 2 of the operation gestalt 1. The actuation on the control panel for performing hereafter processing explained with the operation gestalt 2 of this invention is explained using the flow chart of drawing 4.

[0037] Drawing 4 is a flow chart which shows the actuation on the control panel for performing the color and pattern transform processing explained with the operation gestalt 2. The color and pattern transform-processing selection key on a control panel are chosen, and a color and pattern transform processing are started (step S401). A field to change is specified using the editor (image edit function) which it has on the control panel. Here, the rectangle field of the request in a manuscript image is specified. It carries out by specifying two points which show the vertical angle of a rectangle field as the appointed approach. Next, a color (color to give metallic luster) to change among the colors in the specified rectangle field is chosen (step S403). In addition, assignment of the field of the request in a manuscript image can specify the field of the form of arbitration, such as a field surrounded not only by the rectangle but by a circle and a free form curve.

[0038] As an approach of choosing, since it is the same as that of the operation gestalt 1, explanation is omitted. And when judging and (step S404) specifying whether the range of color level is specified, the range of the color level of the range of arbitration is specified by the user (step S405a). On the other hand, when there is no assignment by the user, initial value is specified as range of color level. (Step S405b). Thus, a field with the color contained in the range of color level specified among the colors used all over the rectangle field turns into a field to which a color and pattern transform processing are performed.

[0039] Next, the texture pattern given to the specified color is specified (step S406). A user chooses a desired texture pattern from the texture pattern of what class with which this is registered beforehand (step S407a, step S407b). Next, the color to change is specified to the specified color (step S408). And when judging and (step S409) specifying whether the range of color level is specified as the specified

color, the range of the color level of arbitration is specified by the user (step S410a). On the other hand, when there is no assignment by the user, the range of color level specified by step S405a or step S405b is followed. (Step S410b). Moreover, correction is made, when a list indication of the selection situation of the texture pattern which can also be specified that it does not give the range of color level to the specified color, the color which will be made applicable to conversion if selection of a color is completed and the texture pattern after conversion, or a color is given, it is urged to the check of a selection situation at a user (step S411) and correction is (step S412). And if the Enter key which it has on the control panel is directed after correction is completed, the copy processing accompanied by a color and pattern transform processing will start (step S413).

[0040] The above serves as actuation on the control panel for performing the color and pattern transform processing of the operation gestalt 2. Next, an image processing including the color and pattern transform processing performed with the operation gestalt 2 is explained using drawing 2. In addition, the press can explained with the operation gestalt 1 is performed similarly. Since it is the same as that of the operation gestalt 1 for details, it omits. After the image information of a manuscript image is memorized by the data RAM 200 for press cans, loading of the usual manuscript image and image formation are performed. Hereafter, the image processing performed in each unit of 1, 3,203-6 is performed. Since it is the same as that of the operation gestalt 1 also about this explanation, it omits.

[0041] And with reference to the color and location data of the manuscript image memorized by the data RAM 200 for press cans, the picture signal MCYK in the color level which performs the color and pattern transform processing in the specified rectangle field in a manuscript image is chosen by the judgment circuit 206, and the gate of the picture signal CMYBk changed from the picture signal RGB is carried out to a color and the pattern conversion circuit 100. Other picture signal M\*C\*Y\*K\* is directly inputted into the image composition circuit 209.

[0042] Color conversion of the picture signal MCYK by which the gate was carried out to the color and the pattern conversion circuit 100 is carried out at picture signal M'C'Y'K' which shows the texture color which has the specified range of color level by the color conversion circuit 207. picture signal M'C'Y'K' by which color conversion was carried out -- the AddOn (pattern superposition) circuit 208 -- (-- a white-noise image signal -- receiving --) -- reading appearance of the pattern specified from ROM01 (101) which memorizes a metal pattern, or ROM02 (102) which memorizes a superposition pattern is carried out. And it is superimposed on the pattern and picture signal M'C'Y'K' by which reading appearance was carried out, picture signal M"C"Y"K" is obtained, and it is inputted into the image composition circuit 209.

[0043] Picture signal M"C"Y"K" and picture signal M\*C\*Y\*K\* are again compounded as one picture signal in the image composition circuit 209. And filter processing is made by 210, and it is inputted into a laser driver 10 after gamma amendment of is done by the gamma transducer 5. The processing after this is processed like the above-mentioned conventional copying machine, an electrostatic latent image is formed on a photoconductor drum of the output of the laser controlled by the laser driver 19, and an image is formed on a record medium through development and imprint / fixation process.

[0044] As explained above, according to the operation gestalt 2, to the picture signal read in the manuscript image, it can give the field of a request of above-mentioned color and pattern transform processing, and a picture signal with the metallic texture and the color of arbitration which has width of face in the color level which is not in the former can be generated. Moreover, it becomes possible to form in a desired field the image which has metallic texture and a color with width of face in color level with the picture signal.

[0045] In the image formation equipment which can be selectively extracted about the image information signal of the specific color field and appointed field according to the operation gestalten 1 and 2 as explained above By adding a pattern superposition circuit, it became possible to obtain the output image which incorporated on the image the metallic texture which did not exist conventionally by rewriting the color information on the image information extracted by arbitration, and superimposing specific image pattern information. Moreover, the image with the metallic texture of the color of arbitration was obtained by changing the color into the color of arbitration.

[0046] In addition, even if it applies this invention to the system which consists of two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), it may be applied to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device. Moreover, it cannot be overemphasized by the object of this invention supplying the storage which recorded the program code of the software which realizes the function of the operation gestalt mentioned above to a system or equipment, and carrying out read-out activation of the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage that it is attained.

[0047] In this case, the function of the gestalt of operation which the program code itself read from the storage mentioned above will be realized, and the storage which memorized that program code will constitute this invention. As a storage for supplying a program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.

[0048] Moreover, it cannot be overemphasized that it is contained also when the function of the gestalt of operation which performed a part or all of processing that OS (operating system) which is working on a computer is actual, based on directions of the program code, and the function of the operation gestalt mentioned above by performing the program code which the computer read is not only realized, but was mentioned above by the processing is realized.

[0049] Furthermore, after the program code read from a storage is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or a computer is equipped, it cannot be overemphasized that it is contained also when the function of the operation gestalt which performed a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped based on directions of the program code is actual, and mentioned above by the processing is realized.

[0050] Although the program code corresponding to the flow chart explained previously will be stored in the storage when applying this invention to the above-mentioned storage, when it explains briefly, each module shown in the example of a memory map of drawing 7 will be stored in a storage. Namely, what is necessary is just to store the program code of each module of an "extract module", the "1st conversion module", and the "2nd conversion module" in a storage at least.

[0051] In addition, an "extract module" extracts the image data which fulfills the conditions specified among said inputted image data. The "1st conversion module" changes the color of the extracted image data. The "2nd conversion module" changes the changed image data using a predetermined pattern.

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[Translation done.]

**\* NOTICES \***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** It is the flow chart which shows the actuation on the control panel for performing the color and pattern transform processing explained with the operation gestalt 1.

**[Drawing 2]** It is the image-processing process flowchart which shows the image processing performed with the operation gestalt 1.

**[Drawing 3]** It is drawing showing the example of the texture pattern of the operation gestalt 1.

**[Drawing 4]** It is the flow chart which shows the actuation on the control panel for performing the color and pattern transform processing explained with the operation gestalt 2.

**[Drawing 5]** They are the conventional image processing and formation configuration schematic diagram.

**[Drawing 6]** It is the configuration schematic diagram of the copying machine of the conventional example.

**[Drawing 7]** It is drawing showing the structure of the memory map of a storage where the program code which realizes the operation gestalt of this invention was stored.

**[Description of Notations]**

- 1 CCD
- 2 AMP
- 3 A/D Converter
- 5 Gamma Converter
- 6 D/A Converter
- 7 Comparator
- 9 Chopping Sea Generating Circuit
- 10 Laser Driver
- 11 Laser Diode
- 12 Polygon Mirror
- 13 F/theta Lens
- 15 Reflective Mirror
- 16 Photoconductor Drum
- 17 Photographic Filter
- 19 Electrification Machine
- P Imprint material
- 21 Imprint Electrification Machine
- 23 Cleaner
- 30 Development Counter
- 31 Conveyance Section
- 32 Fixing Assembly
- 33 Paper Output Tray



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[Translation done.]

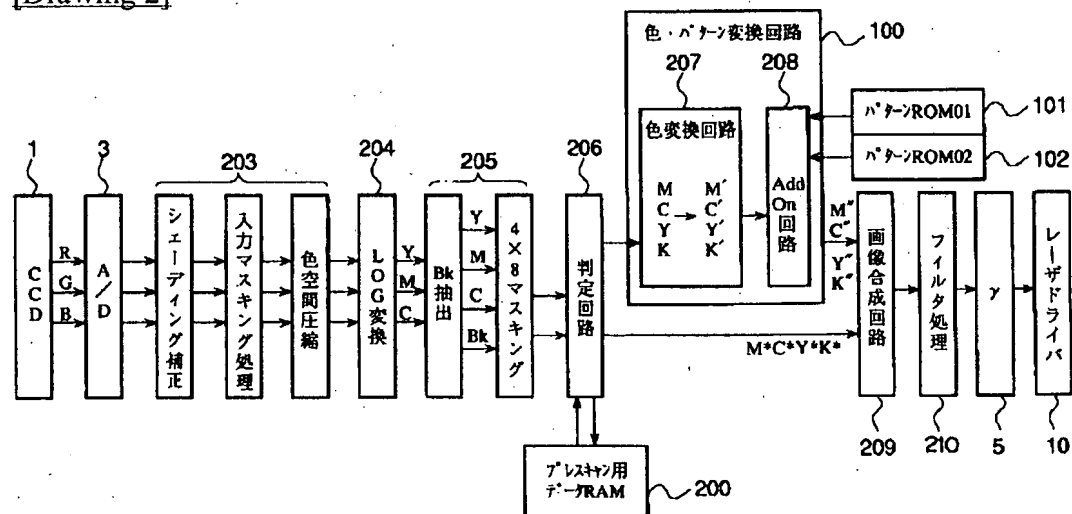
## \* NOTICES \*

JPO and INPIT are not responsible for any damages caused by the use of this translation.

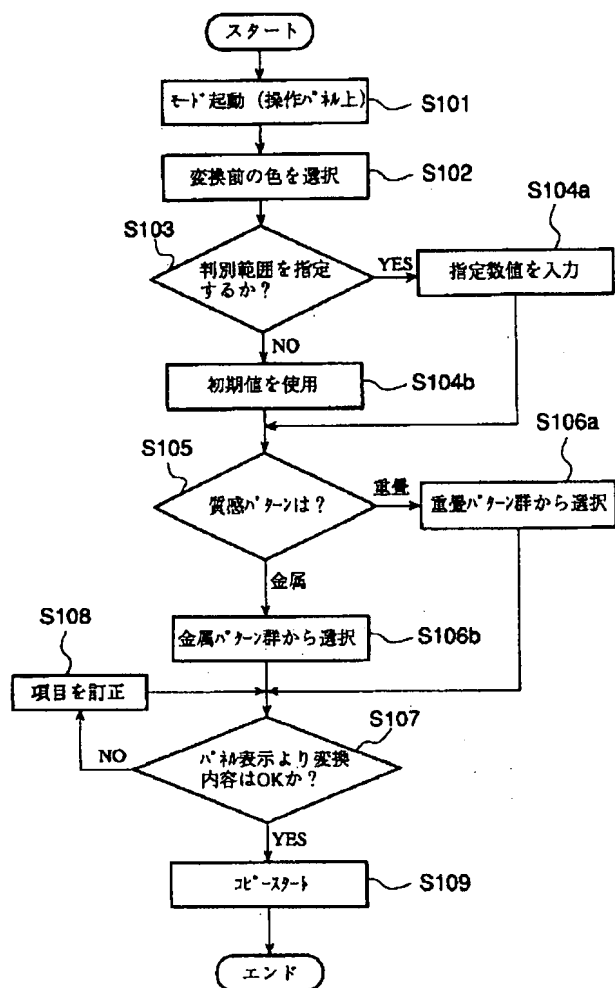
1. This document has been translated by computer. So the translation may not reflect the original precisely.
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## DRAWINGS

[Drawing 2]



[Drawing 1]

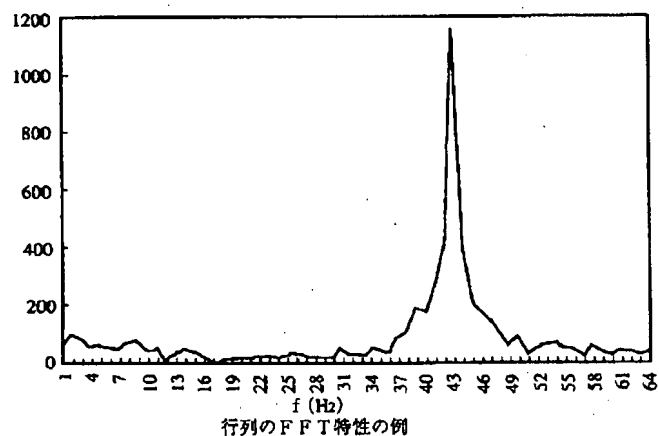


[Drawing 3]

$$H = \frac{1}{7} \times \begin{bmatrix} 5 & 3 & 1 & 5 & -1 & -3 & 1 \\ 3 & 1 & 5 & -1 & -3 & 1 & -5 \\ 1 & 5 & -1 & -3 & 1 & -5 & 3 \\ 5 & -1 & -3 & 1 & 5 & 3 & 1 \\ -1 & -3 & 1 & 5 & 3 & 1 & 5 \\ -3 & 1 & 5 & 3 & 1 & 5 & -1 \end{bmatrix}$$

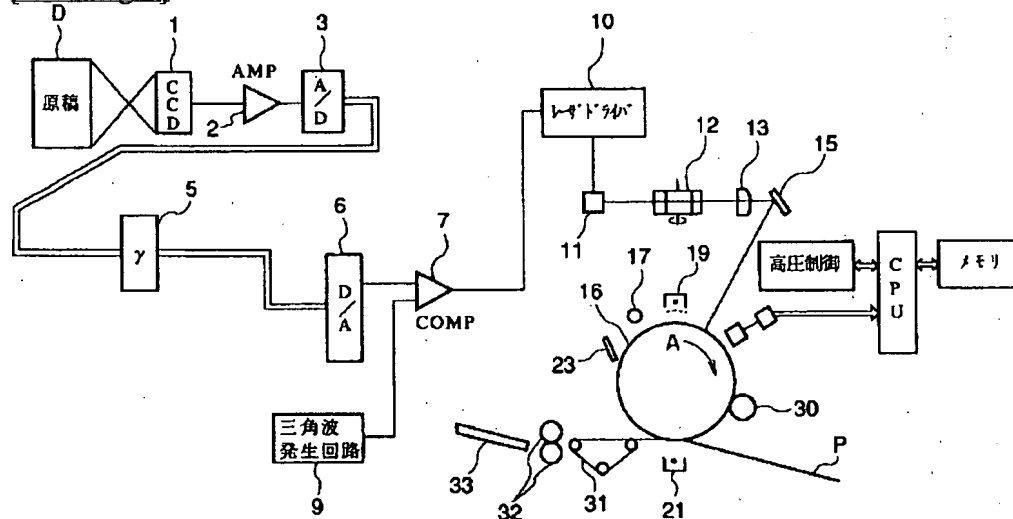
質感重量行列Hの例  
 行列の各要素の総和が1となる様な行列  
 (※1/4x 画像信号に対して行列をかける)

(a)

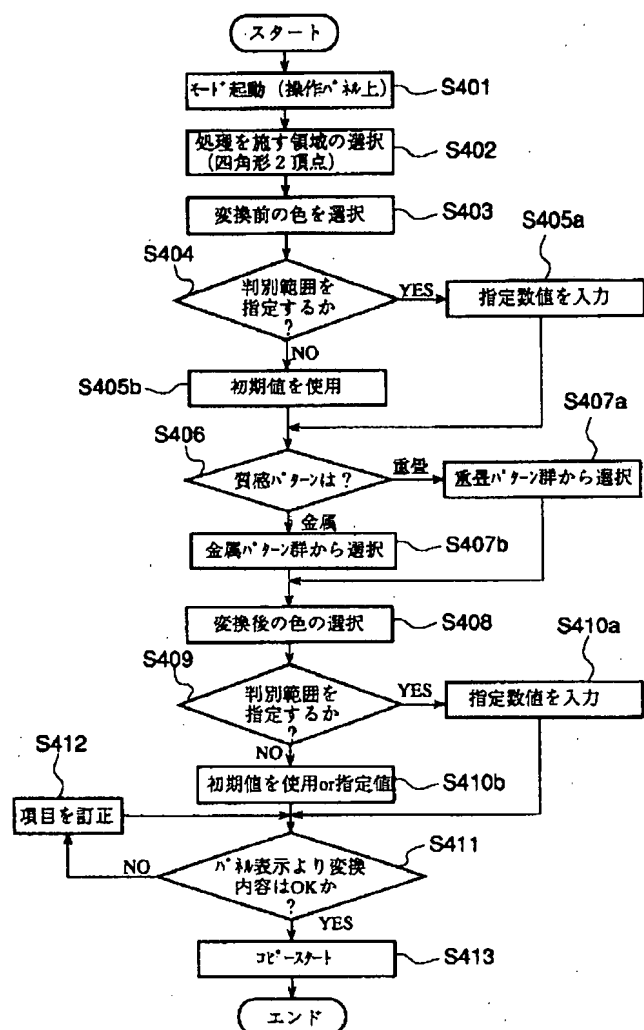


(b)

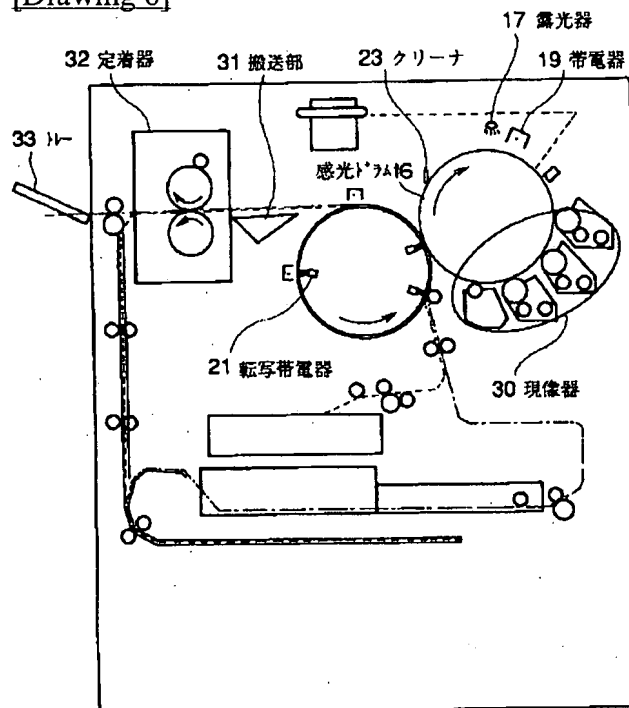
[Drawing 5]



[Drawing 4]



[Drawing 6]



[Drawing 7]

ディレクトリ
抽出モジュール
第 1 変換モジュール
第 2 変換モジュール

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[Translation done.]